ABSTRACT OF THE DISCLOSURE

An apparatus for protecting legitimate traffic from DoS and DDoS attacks has a high-priority (505) and a low-priority (506) queue. Besides, a queue information table (402) has STT (Source-based Traffic Trunk) service queue information of a specific packet. A queue coordinator (502) updates the queue information table (502) based on a load of a provided STT and a load of the high-priority queue (505). A packet classifier (504) receives a packet from the network access unit (508), investigates an STT service queue of the packet from the queue information table (502), selectively transfers the packet to the high-priority (505) or the low-priority (506) queue and provides information on the packet to the queue coordinator (503). A buffer (507) buffers outputs of the high-priority (505) and the low-priority (506) queue and provides outputs to the network (509) to be protected.